Chapter 4

PRECIOUS METALS RECOVERY PROGRAM (PMRP)

4.1. Purpose and Scope.

4.1.1. This chapter states Air Force (AF) responsibility for taking part in the Department of Defense (DoD) Precious Metals Recovery Program (PMRP). It implements AFPD 23-5, *Reusing and Disposing of Materiel*. It applies to all AF activities that generate, store, or dispose of precious metals bearing scrap or residue. This chapter supersedes AFR 400-14, 30 October 1981.

4.1.2. The PMRP is established to promote the economic recovery of precious metals from excess and surplus materiels, and the use of recovered precious metals as government-furnished materiel and for other authorized AF uses. The metals covered in the PMRP include gold, silver, platinum, palladium, iridium, rhodium, osmium, and ruthenium.

4.1.3. These policies and procedures apply to all AF activities worldwide to include any activity managing, receiving, handling, storing, issuing, using, requisitioning, purchasing, shipping, or contracting, when precious metals are involved. This also includes disposing of fine precious metals, or items of supply containing precious metals and precious metals bearing scrap, sludge, solutions, powders, flake, black and white photographs, or other mixtures/forms. They also apply to all activities involved in contracting out efforts of any AF activity where precious metals in any form are involved.

4.1.4. All AF activities at an installation will cooperate to the fullest extent with the installation PMRP manager regardless of organizational entity, the resources protection executive committee (RPEC) (see AFI 31-209, *The Air Force Resource Protection Program*), the precious metals area representative (PMAR), and the Defense Reutilization and Marketing Office (DRMO) to ensure a successful program. Units deploying will participate in the PMRP at the temporary host installation.

4.2. Precious Metals Recovery Program Manager.

4.2.1. The installation commander will appoint in writing or delegate the appointment of a PMRP manager (and an alternate when deemed appropriate) for management of the program for the installation and to act as the focal point for all matters concerning the PMRP. Recommend at those installations where the appointment is an additional duty that it be for a one-year period. At Air Force Materiel Command (AFMC) installations, where

the Air Logistics Centers (ALCs) are located, the PMRP manager will be assigned within the Financial Management (FM) functional area, and at Wright-Patterson AFB OH in the 88 Supply Squadron/DMS organization. At other installations we recommend that the PMRP manager be assigned to the Logistics Group functional area or the Chief of Supply (COS) activity. The installation commander may designate anyone in any activity to perform PMRP duties when it is considered appropriate.

4.2.2. The PMRP manager will ensure that this chapter is supplemented or that a local regulation or operating instruction is developed and implemented to comply with overall program requirements. All activities involved in the PMRP are required to maintain a current copy of the applicable publication. There will be no exception to this requirement.

4.2.3. The PMRP manager will maintain a list of the organization's PMRP monitor's/alternate's name, phone number, location and, as applicable, type of recovery equipment, kind of precious metals scrap generated, and the kind of fine precious metals and high precious metals content items used, such as anodes, brazing, and solder which have controlled item code (CIC) "R" assigned. The only contractor activities which this information is required for are those meeting the criteria in paragraph 4.14. of this chapter. Maintain a record of fine precious metals that are furnished as government-furnished materiel (GFM) to include contract number and contractor's name and address. Do not maintain a list of organizations that are not involved in the PMRP.

4.2.4. There is no requirement for the installation PMRP manager to keep a record of the amount of precious metals used on the installation or fine precious metals, precious metals bearing scrap, or items turned in to the DRMO. The record keeping for use of fine precious metals and turn in of fine precious metals, scrap, and end items not on the accountable supply record will be accomplished by the using/generating activity and will be subject to periodic review/audit by the PMRP manager, investigative agencies, and for fine precious metals and high content items assigned CIC "R," an audit team as prescribed in paragraph 4.2.14.

4.2.5. The PMRP manager will ensure that each organization on the installation which is involved in the PMRP (paragraph 4.l.2.) appoints a PMRP monitor and an alternate as required.

4.2.6. The PMRP manager will ensure activities receiving, issuing, and using fine precious metals and items having a high content of precious metals which are assigned CIC "R" appoint an individual(s) in writing to receipt for and issue these materiels.

4.2.7. The PMRP manager will ensure each activity that has an electrolytic recovery unit(s) and/or silver recovery cartridge(s) appoints an individual(s) to harvest the silver flake and sludge from the electrolytic unit and/or change cartridges. Also ensure a disinterested party (one who does not operate the equipment or harvest the silver) witnesses the harvesting and also weighs the flake and/or sludge or the cartridge and signs the turn-in document as being accurate. Gram scales are not required at each organization where flake, sludge, cartridges, etc., are generated. It is cost prohibitive to require them at all locations. If gram scales are not available within your organization, make arrangements with another organization or the DRMO to use their scales. Ensure necessary security precautions are taken to preclude any loss of precious metals residue.

4.2.8. The PMRP manager will ensure each activity involved in the PMRP initiates and maintains a self-inspection program to include, as a minimum, periodic testing of hypo solution draining from electro-lytic/cartridge units to ensure they are operating properly, and compliance with receipt, issue, and turn-in requirements.

4.2.9. The PMRP manager will prepare a schedule for and visit each participating activity at least once every 24 months for review of operations, documentation, and adherence to overall program requirements. Authority is granted to the installation commanders to determine, at their discretion, the frequency of visits in excess of once every two years. Conduct program management training for activity monitors. This training will be done on a periodic or as required basis. Perform no-notice reviews as deemed appropriate. Prepare and maintain a report of findings. Ensure corrective action is taken on any discrepancies. Also obtain and keep on file a copy of any reports concerning the PMRP that are generated as a result of AFI 31-209.

4.2.10. The PMRP manager will ensure that any activity having items which are laboratory tested for presence of precious metals provides the results, whether positive or negative, to the integrated material manager (IMM) that manages the national stock number (NSN) for assignment of the appropriate precious metals indicator code

(PMIC) in the federal catalog system. Also advise the IMM of any item(s) known to contain precious metal if a PMIC has not been assigned or if it is found that the assigned PMIC is incorrect.

4.2.11. The PMRP manager will apprise the servicing DRMO relative to any guidance required concerning segregation of precious metals bearing scrap or for any need of containers for scrap.

4.2.12. The PMRP manager will notify the PMAR (Figure 4.1.) of any requirements for precious metals recovery equipment, repair parts, and supplies that are furnished by the Defense Logistics Agency (DLA) on a free issue basis. Also, request the PMAR provide any training workshops, seminars, or briefings required.

4.2.13. The PMRP manager will maintain liaison with the DRMO and PMAR to keep abreast of precious metals recovery techniques and to obtain or give assistance on the overall PMRP.

4.2.14. The PMRP manager will ensure activities receiving, issuing, handling, and using fine precious metals and high content precious metals bearing items assigned CIC "R" maintain appropriate auditable records, and that the records and quantities of material on hand are audited by disinterested personnel (person(s) not involved in the use or recovery of precious metals) periodically but no less than two times per year. There are no requirements for issue control of items assigned a PMIC unless they have a CIC assigned which requires control. The base/depot supply officer may require control based on unusually high consumption rates.

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Operations West provides PMAR service for the following states/activities: Alaska Arizona Arkansas California Colorado Idaho Illinois (Scott AFB) Kansas Louisiana Mississippi (Columbus AFB) Missouri Montana Nebraska Nevada New Mexico N. Dakota Oklahoma Oregon S. Dakota Texas Utah Washington Wyoming	Operations East provides PMAR service for all bases/activities that are located east of the Mississippi River, except as noted in left-hand column.

Figure 4.1. DRMS Precious Metals Area Representative (PMAR) Responsibilities.

4.2.15. The PMRP manager shall not be held responsible for monitoring any items that are not acquired through normal depot/base supply channels. The activity acquiring the item (other than from supply) will ensure that all precious metals recovery requirements are met when property is known to contain a recoverable amount of precious metals. All activities that are supported by a contractor owned/operated supply operation -- for example, contractor operated parts store (COPARS), civil engineer materiel accounting system (CEMAS), AF Form 9 (**Request for Purchase**) purchases, etc.; and local purchase items bought through the supply account -- will be managed in the PMRP when the using activity is aware that there is precious metals in the item; otherwise, it will not be.

4.3. Responsibilities of Activities Involved in the PMRP.

4.3.1. AFMC:

4.3.1.1. Acts as the AF Manager for the PMRP.

4.3.1.2. Implements AF policy and provides procedures for use by all AF activities worldwide.

4.3.1.3. Represents the Air Force in developing DoD policies and procedures.

4.3.1.4. Maintains AF policy and procedures established in this manual.

4.3.2. Major Commands:

4.3.2.1. Comply with established policies and procedures.

4.3.2.2. Appoint a command PMRP manager to ensure establishment and surveillance of an effective program within each command.

4.3.2.3. Ensure that each installation commander appoints a PMRP manager and establishes an effective PMRP.

4.3.3. The Installation PMRP Manager. The installation PMRP manager's responsibilities are delineated in paragraph 4.2., above.

4.4. DRMO.

4.4.1. The DRMO has the responsibility to accept accountability for, receive, store, safeguard, and make disposition of fine precious metals and precious metals bearing material, scrap, and waste that is turned in. The DRMO also determines if it is economical to recover the precious metal or if the material, scrap, or waste should be sold at a price to recoup the approximate dollar value of the precious metal content.

4.4.2. The DRMO will assist in determining the degree of segregation of scrap, identification of metals not readily determined without special expertise, and ensuring appropriate receptacles are provided for the generating locations.

4.5. PMAR.

4.5.1. This function has been assigned to the Operation Specialists located in Defense Reutilization Marketing Service (DRMS) Operations West (Ogden UT) and Operations East (Columbus OH). The requirement to support the precious metals program has not changed; however, the team providing that support is very different.

4.5.2. The generating activities are much more concerned with minimizing the waste stream and reducing the amount of silver in the recovery solution than they are with silver recovery. The price of silver remains very low; therefore, the cost of recovery must be minimized. The expenses incurred in the recovery of silver from hypo solution have cost more than the value of the silver recovered.

4.5.3. Due to the cost of silver recovery, it is recommended that a silver cell oriented recovery program be established wherever possible. The results from silver cells are excellent with black and white chemistry, if cells are replaced as recommended and the appropriate flow rate is maintained. Color chemistry and bleach fix are often more effective to dispose of as hazardous waste than to expend resources on silver recovery. When a large volume of color chemistry is involved, the process can be considered for electrolytic processing.

4.5.4. When electrolytic processing is required, the PMAR shall recommend and furnish specific types of recovery equipment on a free issue basis for processing hypo solutions based on surveys, cost-effectiveness, and available facilities. Also on a free issue basis provide supplies such as plastic pipe, fittings, silver test paper, control valves, plastic hypo collection containers, metallic displacement cartridges, and replacement parts. The PMAR activity will not furnish gram scales, since they are not designed for weighing precious metals only and are not a piece of equipment totally necessary to the recovery process. Coordinate delivery of PMRP recovery equipment, supplies, and spare parts for the equipment to hypo generating activities. Assist with installation and trouble shooting of the equipment, as necessary.

4.5.5. Since the specialist are no longer within close proximity of most customers, it is neither practical nor economical for them to perform regular surveillance of installed equipment. However, the cell concept of silver recovery is not a technical process. The installation Precious Metals Manager should not have a problem providing equipment surveillance and local assistance. Requests for equipment and supplies can be directed to operations east or west (Figure 4.1.). The PMAR activity stands ready to assist you with processing problems

and compliance issues. However, they ask for as much advance notice as possible concerning training or on-site assistance, because they manage several areas that compete for priority.

4.6. PMIC.

4.6.1. A series of PMICs have been established which applies to items of supply. These codes indicate the existence or non-existence of precious metal(s) contained in or on items of supply (see Figure 4.2.). To obtain identification of precious metals on engineering drawings DoD Standard l00E, *Military Standard Engineering Drawing Practices*, must be applied. For PMRP purposes, it is not necessary nor required to have current drawings reaccomplished to obtain precious metals data unless the drawings require a change or revision.

PMIC	DEFINITION
A	Item does not contain precious metal.
C	Item contains combination of two or more precious metals (silver, gold, platinum).
G	Item contains gold.
P	Item contains platinum family metals.
S	Item contains silver.
U	Precious metal type is unknown.
V	Precious metal type varies between manufacturers.

Figure 4.2. Precious Metals Indicator Codes.

NOTE:

1. PMIC is a mandatory data element.
2. Invalid PMIC submitted receives the HQ Return Code if not compatible with the characteristics data submitted/recorded in segment V.
3. PMIC "V" addresses an "or" situation that may be encountered by the computer where the presence or absence of precious metals varies between items of production for the same item of supply.
4. This information was extracted from DoD Manual 4100.39, *Defense Integrated Data System (DIDS) Procedures Manual*, April 1989, volume 10, Chapter 4, Table 160.

4.6.2. The PMIC can only be assigned to NSN items by the inventory control point (ICP) activity that manages the item. Within the Air Force it is the responsibility of the equipment specialist (ES) to determine the appropriate PMIC. The feasibility and economics of recovering the precious metal from an item or the cost of the item will not be considered by the ES in assigning the PMIC. The PMICs assigned by the ES to NSN items will be transmitted to the federal cataloging system. Also, it is the responsibility of the ES to ensure that PMICs are assigned. The PMICs should be obtained from the contractor by application of MIL-STD-1388-2A, *DoD Requirements for a Logistics Support Analysis Record*. They cannot be assigned to NSNs at base level or by another activity that only uses the NSN item. When PMICs are assigned or changed by the ICP, they are furnished to the standard base supply system (SBSS) and the depot supply (D035K) system by the stock number user directory and to the ALCs through the D143B system. They are also contained in the FED-LOG Management Data System.

4.6.3. Within the Air Force PMICs are also being assigned to "ND" (one-time buy) and "K" (kit) stock numbers.

4.6.4. At some future date the SBSS will have the capability to accept PMICs assigned to part number and non-NSN item records by the appropriate base supply activity. Also the SBSS will add the PMIC to and print the words *Contains Precious Metal* on all SBSS issue, turn in, shipment, and due out release transactions when the PMIC is other than "A."

4.6.5. The AFMC depot supply system (D035K) is printing the PMIC on issue documents and *Contains Precious Metal* on them when the PMIC is other than "A."

4.6.6. The PMIC does not prescribe the level of physical protection for items of supply and should not be used as such. PMICs are not synonymous with CIC (also known as "Physical Security/Arms, Ammunition and Explosives Security Risk/Pilferage Codes" in the Federal Cataloging System). The PMIC should not be the sole basis for assigning a CIC, but should be one of the elements of management data used to determine the CIC.

4.6.7. PMIC codes assigned, other than "A" indicating presence of precious metals in or on an item, do not dictate the assignment of CIC "R." For example, if an item has a security classification that dictates stringent handling or processing, that applicable CIC takes precedence over "R" or any other pilferage code.

4.6.8. The PMIC cannot be related to the unit price of an item. The unit price is based on many things. Some of them, as applicable, are engineering costs, basic material content including precious metals, quantity purchased, manufacturing costs, and complexity of the item.

4.6.9. PMICs were developed for use on the disposal turn-in document (DTID) to alert the DRMO of the presence or absence of precious metals in or on an item of supply. If an item contains any precious metal, it is the responsibility of the DRMO to determine if it is economical to recover the precious metals. Within the AF the PMIC is also being used to indicate the presence of precious metals on issue documents (see paragraphs 4.6.4. and 4.6.5.); and at the ALCs the PMIC is being used in many data systems such as the requirements computation systems to alert the ICP so that the fine precious metals can be used, when applicable, as GFM to production and repair contractors and for authorized internal use for repair/overhaul.

4.6.10. PMICs have been assigned to all items of supply in the federal cataloging system since the DLSC modernization.

4.6.11. The PMIC will not be used by the PMRP Manager or COS personnel for management and control of items in the supply system. The PMRP Manager is not required to manage PMIC coded items in the PMRP. Generating activities should be advised to turn in PMIC coded items as directed by the guidance in volume 2, part 2, Chapter 13, Section 13C.

4.7. Scrap Segregation.

4.7.1. Precious metals bearing scrap will be segregated from other scrap for turn in to the DRMO. See chapter 2 of DoD Manual 4160.21, *Defense Reutilization and Marketing Manual,* March 1990, for more information on scrap segregation.

4.7.2. Items with expendability, recoverability, repairability category designators of "XF3" code "P" and "XB3" code "N," although generally expendable at base level, are not throw-away items. Regardless of whether or not the item contains precious metals, do not throw it away after it is expended. When expended (condemned), these items should be placed in an appropriate receptacle in the work place for periodic turn in as scrap to the DRMO.

4.8. Silver Recovery.

4.8.1. Silver recovery is addressed separately and in more detail than other precious metals due to some unique aspects, such as use of electrolytic recovery units and metallic replacement cartridges -- commonly called silver recovery cartridges -- for recovery from spent hypo solutions.

4.8.2. The term *silver bearing scrap,* as used herein, pertains to expended hypo solution, silver extracted from expended hypo solution in the form of flake and sludge, exhausted silver recovery cartridges, scrap film, film ash, drillings or cuttings from anodes, used welding or brazing wire and residue generated therefrom, silver flakes, silver chloride dust sweepings, silver bearing amalgam or residue therefrom, expended X-ray film, photographic papers, black and white photographs and negatives, silver bearing sludge from plating and stripping operations, and microfiche masters. Some microfiche copies do not contain silver, while some do in such a minuscule amount that silver recovery is not economical.

4.8.3. Precious metal recovery equipment and supplies for recovery of silver from spent hypo solution will be obtained from your PMAR on a free issue basis. Items available are: electrolytic recovery units, silver recovery cartridges, replacement parts, control valves, plastic pipe and fittings peculiar to the recovery equipment, plastic hypo collection containers, and silver test paper. Also available, as required and justified, are film incinerators. Equipment will be issued on a hand receipt. The using activity will maintain jacket file accountability. Gram

scales are not furnished by DLA, since they are a piece of equipment not directly related to precious metals recovery and can be used for other purposes. There may be instances of photo labs and other generating activities that are contractor operated. You must check the contract to determine if the Air Force is required to furnish recovery equipment and supplies prior to requesting DLA to furnish them. (See paragraph 4.14.)

4.8.4. Generating activities are responsible for preventative maintenance on recovery equipment, and the PMAR is responsible for arranging for all other maintenance and repair. Preventative maintenance includes day-to-day adjustments, cleaning, replacement of fuses, gaskets, and hoses, and like actions which can be performed as a safeguard against excessive equipment downtime. If the equipment malfunctions and you are unable to fix it, contact your PMAR for assistance. While the equipment is deadlined or being cleaned, ensure that no spent hypo and/or fixer solution is poured down the drain. Spent hypo and/or fixer solution will either be collected and turned in to the DRMO or retained and run through the recovery equipment when it becomes operational. There are kits available from the PMAR to modify film and X-ray processors to provide for easy draining of the solution into containers when the unit is shut down for maintenance. If your processor does not have the modification, contact your PMAR.

4.8.5. For additional information refer to DoD 4160.21-M, chapter 7.

4.9. Turn-In Procedures.

4.9.1. Precious metal bearing scrap, sludge, flake, solutions, powders, black and white photographs and negatives, waste and other mixtures and forms, and excess fine precious metals will be turned-in to your servicing DRMO. Precious metals bearing materiel will be safeguarded according to locally established procedures. To prevent and minimize the possibility of theft, they should be turned in promptly. If there are any questions concerning AFI 31-209 requirements, contact your local security police.

4.9.2. Excess and condemned items bearing precious metals will be turned in to the DRMO as items, unless they qualify for turn in as scrap. If the PMIC has been assigned, it will be placed in column 62 of the DTID. The DRMO, as applicable, will process the items for utilization, donation, sale, or recovery of the precious metal.

4.9.3. Excess fine precious metals will be turned in to the DRMO by the NSN assigned (see paragraph 4.10.). Entries required on the DTID, as identified in DoD 4160.21-M, chapter 2, attachment 2, are mandatory except:

4.9.3.1. Retention quantity, demilitarization code, reclamation code, automatic data processing equipment code (ADPEC), condition code, unit cost, and total cost will be left blank.

4.9.3.2. Troy weight in grams will be entered in columns 25-29. Due to calibration of or the type of scales used by you and those used by the DRMO, there can be a variance in weight of the materiel being turned in. Any variance in weight must be explained. It is necessary that you re-weigh the materiel on both scales and have a witness also weigh and certify the weight. If a variance still occurs, document the circumstances, sign and date, and have the DRMO representative also sign and date. Keep a copy of the documented circumstances with your precious metals records.

4.9.3.3. The kind of fine precious metal will be entered in blocks "w" through "y" (see para. 4.10.).

4.9.4. Silver flake and silver sludge harvested from electrolytic recovery units, silver sludge from plating shops, and recovery cartridges will be turned in to the DRMO on separate DTIDs. Entries on the DTID will be made except:

4.9.4.1. Stock number, retention quantity, demilitarization code, reclamation code, automated data processing equipment code (ADPEC), condition code, unit cost, and total cost will be left blank.

4.9.4.2. Troy weight in grams will be entered in columns 25-29 except for the weight of exhausted silver recovery cartridges which will be *avoirdupois* pounds.

4.9.4.3. Silver flake or silver sludge indicated as wet or dry, as applicable, will be entered in blocks "w" through "y." For silver recovery cartridges enter *silver recovery cartridge* and *serial number*. Due to calibration of or the type of scales used by the generating activity and those used by the DRMO, there can be a variance in weight of the materiel being turned in. Any variance in weight must be explained. It is necessary that you re weigh the materiel on both scales and have a witness also weigh and certify the weight. If a variance still occurs, document

the circumstances, sign and date, and have the DRMO representative also sign and date. Keep a copy of the documented circumstances with your precious metals records.

4.9.5. Silver, gold, and platinum scrap generated as a result of grinding, drilling, cutting, etc., will be turned in per paragraph 4.9.4., identifying the type of scrap in blocks "w" through "y."

4.9.6. All other precious metals bearing scrap will be turned in to the DRMO on a DTID including the data prescribed in paragraph 4.9.4. except that weight will be by avoirdupois pounds and blocks "w" through "y" will be annotated *precious metals bearing scrap.* Depot Maintenance Business Area (DMBA) (formerly Industrial funded) activities will also mark the DTID as "DMBA scrap" and include the DMBA account number which 100 percent of sales proceeds will be deposited should the DRMO sell the scrap.

4.10. Requisitioning and Use of Fine Precious Metals.

4.10.1. Precious metals recovered by this program are refined, stored, and managed by the Defense Industrial Supply Center (DISC). They are available for use on approved internal AF programs and for use as GFM on production and maintenance contracts (see paragraph 4.19.). The cost per troy ounce of the precious metals includes the cost of recovery, an authorized administrative surcharge, and transportation charges, but the cost is still significantly lower than open market prices.

4.10.2. AF activities requiring fine precious metals for internal AF programs and for production or repair contracts as GFM will determine availability from DISC. Availability for production or repair contracts will be determined by the activity preparing the purchase request. If available, it will be requisitioned. AFMC activities will refer to AFMCI 21-113, *Contract Maintenance Programs for Depot Maintenance Business Area (DMBA),* for contract maintenance materiel support.

4.10.3. Activities requiring precious metals will call DISC at DSN 442-3045 or 3006, commercial (215) 697-3045/3006 for availability prior to requisitioning. If the precious metals are not available**,** document for your records the name of the person at DISC, the kind and quantity of precious metal, and the date and contract or work order number. Provide a copy of the documentation to the installation PMRP monitor for record purposes.

4.10.4. DISC currently manages nine precious metals, each having a unit of issue of troy ounce. Current price is listed in the FED-LOG Management Data System.

Nomenclature	**NSN**
Gold	9660-00-042-7733
Silver	9660-00-106-9432
Platinum Granules	9660-00-042-7768
Platinum Sponge	9660-00-151-4050
Palladium Granules	9660-00-042-7765
Palladium Sponge	9660-01-039-0320
Rhodium	9660-01-010-2625
Iridium	9660-01-011-1937
Ruthenium	9660-01-039-0313

4.10.5. The following specific procedures will be used to requisition precious metals from DISC. The Military Standard Requisitioning and Issue Procedures (MILSTRIP) requisition will be submitted by message or letter citing one of the preceding NSNs. It must cite full troy ounces. Exception data to be cited in the remarks section is as follows:

4.10.5.1. An unclassified *ship to* address specifying exact location (building, post/room number, office symbol, and name of individual) and zip code.

4.10.5.2. The number of the contract on which the precious metal is to be used as GFM and the NSN of the item(s) being procured or repaired. If no NSN is assigned, give noun and part number.

4.10.5.3. If for internal AF use, include the work order number and intended use of the precious metal.

4.10.5.4. Name and phone number of a contact point at the requisitioning activity.

4.10.5.5. The requisition should be submitted by message; however, letter requisitioning is authorized. Messages will be addressed to DISC-OIBA/ YC, 700 Robbins Ave., Philadelphia, PA 19111-5096. Allow two to three weeks for delivery of the precious metal.

4.10.6. Requisitions for precious metals for GFM furnished to repair/overhaul contractors. All repair/overhaul contractors with a stock record account number beginning with "EZ" must submit their requisition(s) to the contracting ALC point of contact for approval and forwarding to DISC. (See AFMCI 21-113.)

4.11. Determining Value of Fine Precious Metals.

4.11.1. The fine precious metals listed by NSN in paragraph 4.10. will be valued using open market prices. Since the open market price fluctuates daily and prices differ at the worldwide markets, a United States market price quote will be used. Many activities provide daily quotes which are published in the business section of the newspaper. There is no preference on which quote is used, but locally document the one chosen.

4.11.2. Daily fluctuations in price per troy ounce can be significant. Therefore, adjustments to inventory value will be accomplished on a quarterly basis during the first work week of January, April, July, and October each year, unless directed otherwise by HQ AFMC, due to upward or downward price adjustments exceeding normal trends.

4.12. Determining Value of High Content Precious Metals Bearing Items.

4.12.1. High content precious metals bearing items assigned a CIC "R," such as brazing, anodes, wire, foil, ribbon, sheet, strip, rod, and flake can be catalog priced at less than the open market price of the precious metals contained therein. This can occur due to daily fluctuations in open market prices, but is usually due to the ICP furnishing the fine metals from this program as GFM to the manufacturer of the above items. Also, some AF activities furnish the fine metals required during the local manufacturing process.

4.12.2. The catalog price or the precious metals content value, whichever is greater, will be used in compliance with locally determined security requirements. The precious metals content can be determined by interrogating the Defense Logistics Information System (DLIS) for NSN items using output data request code "9912" at the ALCs. SBSS and other activities must use the federal cataloging system identification list or contact the ICP who manages the NSN to determine precious metal content.

4.12.3. Valuing the precious metal content will be done according to paragraph 4.11.

4.13. Determining Value of Precious Metals Bearing Scrap.

4.13.1. Precious metals bearing scrap will be valued as follows:

4.13.1.1. High temperature alloys such as stator vanes, engine exhaust cones, and aircraft parts excluding spark plugs, thermocouples, and breakers. Multiply total estimated or actual weight by .001 for gold and .004 for silver to obtain the approximate troy ounce weight of precious metal content. Multiply each troy ounce weight by the current open market price used in paragraph 4.11.

4.13.1.2. Segregated, but not sorted, electrical and electronic scrap. Multiply the total estimated or actual weight by .002 for gold, .008 for silver, and .001 for platinum to obtain the approximate troy ounce weight of precious metal content. Multiply each troy ounce weight by current open market price used in paragraph 4.11.

4.13.1.3. Silver flake harvested from electrolytic units. Multiply the actual troy ounce weight by 90 percent of the current open market price used in paragraph 4.11.

4.13.1.4. Silver bearing sludge from electrolytic units and stripping tanks. Multiply the actual troy ounce weight by 90 percent of the current open market price used in paragraph 4.11.

4.13.1.5. Grindings and floor sweepings. Multiply the actual troy ounce weight by 95 percent of the current open market price.

4.13.1.6. Dental laboratory dust. Based upon assay results, one pound of dust contained 0.16 troy ounce of

gold, 0.01 troy ounce of silver, and 0.09 troy ounce of platinum. Determine amount of precious metals using preceding figures then multiply the troy ounce weight by 95 percent of the current open market price.

4.14. Statement of Work for Contracting Out.

4.14.1. Any organization preparing a statement of work (SOW) for any activity operated on an AF installation where precious metals are used or recovery is involved must ensure that the precious metals recovery program is addressed. Some activities involved may be photo labs, non-destructive inspection labs, or plating/repair facilities. Contact your installation PMRP monitor and the contracting and manufacturing activity for assistance. Things that must be considered are:

4.14.1.1. Who will furnish raw materials such as film, film paper, acids, solutions, anodes, repair parts, etc.

4.14.1.2. Generally, based upon who furnishes or pays for raw materiels, determines who retains negatives, outdated/damaged film, excess black and white prints, photo papers, spent hypo solution, harvested silver flake, sludge, and scrap repair parts.

4.14.1.3. How will spent hypo solutions be processed for silver recovery? Spent hypo solution positively cannot be dumped on the ground or into drainage ditches or storm sewers. After the silver particles are removed from spent hypo using standard silver recovery equipment, the spent hypo may be dumped into the sanitary sewer or industrial waste treatment facility.

4.14.1.4. Who will furnish silver recovery electrolytic units or recovery cartridges? If a DLA owned electrolytic unit is already installed, it should be removed or an appropriate arrangement be made with the contractor for use of the equipment. If government-furnished equipment is used, then the SOW must provide for periodic visits by the PMAR and installation PMRP monitor to check the condition of the equipment.

4.14.1.5. When the government retains title to recovered silver, silver recovery cartridges, scrap repair parts, and other precious metals bearing material, you will stipulate that the contractor appoint, in writing, a person(s) as a PMRP monitor to comply with the PMRP and provide for visitations to the contractor site by the installation PMRP monitor. Also provide necessary procedures and blank documents for turn in of the precious metals bearing material to the DRMO.

4.15. PMRP Training.

4.15.1. Periodically, the ALCs will conduct a PMRP workshop/training session to ensure that the organizational PMRP representatives are aware of and participate in the program. The ALC manager will determine the date(s) and frequency of the training sessions. The PMAR functions may be contacted for assistance with the training; however, if the program is properly focused, the intensity and frequency of the training can be significantly reduced.

4.15.2. When a PMRP workshop/training session is scheduled, the ALCs, as a minimum, will advise HQ AFMC/LGID, the other ALCs, AGMC/XRS, AMARC/DS, 88th Supply Squadron/DMSMS (Wright-Patterson AFB, OH), other AFMC bases, and the major command monitors that are within their geographical area of support.

4.15.3. AF base Air National Guard (ANG) and Air Force Reserve (AFRES) installation monitors will be receiving notification of PMRP workshop/training sessions. The sessions will be held on a regional basis; therefore, notification will be from the host activity which could be Air Force, Army, Navy, or DRMS.

4.15.4. Major command, AF base, ANG, and AFRES installation managers are encouraged to attend workshop/training sessions. Your parent organization will be responsible for TDY/per diem arrangements and expenses. As a minimum, these workshop/training sessions provide information on how the overall PMRP works, identifies the various government activities involved, identifies and provides a look at the various categories of parts that contain precious metals (i.e., aircraft, engine, electronic), and allows cross talk and the exchange of ideas for improving the process.

4.15.5. On the job training for installation and organization monitors will be used to teach accountable recordkeeping, turn-in and receipt transactions, weighing, operation of the electrolytic recovery unit and harvesting techniques, safeguarding (AFI 31-209) precious metals materiels, etc. For the security and

safeguarding of precious metals we recommend coordinating with the Resource Protection Agency for a briefing.

4.15.6. A sample PMRP training outline, approved for optional use by AF activities worldwide, is at Figure 4.3.

4.16. Resources Protection.

4.16.1. All AF activities must be guided by AFI 31-209 when establishing protection requirements for fine precious metals, precious metals bearing scrap, and high content precious metals bearing items.

4.16.2. Specific protection requirements, that is, need for alarms, controlled areas, physical security of plating tanks and facilities will be determined locally, considering the value of each category. Close coordination with security police and the RPEC is paramount in establishing these requirements.

4.17. Precious Metals Bearing Materials with Hazardous Characteristics.

4.17.1. Effective 5 July 1985 hazardous waste regulations were amended to require manifesting of all wastes from which precious metals are recovered. Any spent hypo solutions and plating chemical solutions, such as spent cyanide solutions, etc., being transported over public highways to the DRMO for precious metals recovery must be manifested using EPA Form 8700-22, **Uniform Hazardous Waste Manifest**, and EPA Form 8700-22A, **Uniform Hazardous Waste Manifest (continuation sheet).**

4.17.2. Some states are requiring more stringent controls. If there are questions concerning handling, transporting, or disposing of precious metals bearing materiels or waste having hazardous characteristics, contact your base environmental/bioenvironmental coordinator and the Transportation Office.

4.18. Use of Fine Precious Metals as GFM.

4.18.1. Defense FAR Supplement (DFARS), Part 8, Subpart 8.73, *Utilization of Government-Owned Precious Metals*, provides the mechanism for use of the precious metals recovered through this program as GFM.

4.18.2. DFARS, Subpart 8.73 essentially requires the provision in DFARS Provision 252.208.7000, *Notice of Intent to Furnish Precious Metals as Government-Furnished Material*, be inserted in solicitations for items in the federal supply groups (FSG) listed in paragraph 4.18.3., or any subassembly, component, or part thereof except when using small purchase procedures, the contracting officer has determined through the end item ICP that the required precious metals are not available from DISC (see paragraph 4.10.); or when the contracting officer knows that the supplies being acquired do not require precious metals in their manufacture.

4.18.3. FSGs and Description:

FSG	DESCRIPTION
12	Fire Control Equipment
14	Guided Missiles
15	Aircraft and Airframe Structural Components
16	Aircraft Components and Accessories
17	Aircraft Launching, Landing, and Ground Handling Equipment
18	Space Vehicles
20	Ship and Marine Equipment
28	Engines, Turbines, and Components
29	Engine Accessories
31	Bearings
34	Metalworking Machinery
58	Communications, Detection, and Coherent Radiation Equipment
59	Electrical and Electronic Equipment Components
61	Electric Wire and Power and Distribution Equipment
65	Medical, Dental, and Veterinary Equipment and Supplies

66	Instruments and Laboratory Equipment
67	Photographic Equipment
68	Chemicals and Chemical Products
84	Clothing, Individual Equipment, and Insignia
95	Metal bar, Sheets, and Shapes

4.18.4. It is AF policy that the DFARS Provision 52.208-7004 be inserted in solicitations as prescribed and for any other items known to contain precious metals. Your local regulations or operating instructions will include necessary procedures for implementation.

THE DOD PRECIOUS METALS RECOVERY PROGRAM (PMRP)

I. WHERE ARE THE PRECIOUS METALS? Examples of precious metal bearing scrap and residual materiel items include: silver cell batteries, missile and electronic parts, spent photographic fixing solution, insignia, film, and dental scrap.

II. POLICY: The DoD policy promotes the economic recovery of precious metals from excess and surplus precious metal bearing materiels. The recovered precious metals are for use for authorized internal purposes or as Government Furnished Materiel (GFM) on supply contracts. Costs associated with the recovery must not exceed the market value of the precious metals recovered.

III. SAMPLE POSTER:

"$AVE DOLLAR$"

PRECIOUS METALS RECOVERY PROGRAM

WANTED
*** GOLD * SILVER * PLATINUM ***

***MONITOR: _____**
***BUILDING: _____**
***PHONE NO.: _____**

IV. PURPOSE AND SCOPE OF PMRP:

A. The PMRP promotes the economic recovery of precious metals from excess and surplus precious metals bearing items. The recovered precious metals play an important part in reducing costs for the government by reusing them for authorized internal purposes or as GFM.

B. The guidance used in the PMRP implement directives and regulations from the DoD, the Air Force, major commands, and your installation. Some of these are mandatory and others are optional depending on the local situation.

C. These procedures apply to everyone in some way: generating activities, such as aircraft maintenance units, photo labs, medical/dental X-ray units, or other areas where precious metals bearing items can be generated. They also apply to base and depot supply activities and item managers.

V. BASE PMRP MANAGER RESPONSIBILITIES: The installation PMRP Manager is in the (unit/ office symbol and telephone number). His/her duties include:

A. Ensuring that all organizations generating precious metals or having excess precious metals bearing items participate in the PMRP.

B. Ensuring organizations in the PMRP develop and implement operating instructions and assign responsibilities to safeguard and process PM and PM bearing scrap.

C. Visit and inspect all PMRP activities periodically (insert frequency for your activity). During these visits he/she will check documentation, note adherence to program policies, and provide basic training for new monitors and alternates.

d. Maintain liaison with DRMO and DLA to ensure the smooth operation of the installation PMRP.

VI. GOLD RECOVERY:

a. Gold is recovered from various types of property such as badges, insignia, anodes, turnings, buttons, and eyeglass frames.

b. High concentrations of gold are found in such materiels as powders, foil, leaf, pellets, dental lingual bars, goldwire, dental castings, and brazing alloys.

VII. PLATINUM FAMILY RECOVERY:

A. Platinum family metals are recovered from such items as aircraft spark plugs, magneto and relay contact points, detonator fuses, anodes, cathodes, crucibles, foil, resistor furnace coils, and thermocouple wires.

B. High concentrations of platinum family metals are found in such materiels as dental alloys, jewelry, laboratory ware, and wire.

VIII. COMBINATIONS: Some property may contain a combination of gold, silver, or platinum family metals, examples are:

A. Expended cyanide and acid based liquids, sludge, powders and salts derived from plating/deplating operations.

B. High temperature alloys such as stator vanes, aircraft exhaust cones, and aircraft panels.

C. Most electrical and electronic materiels.

IX. UNIT USERS RESPONSIBILITIES AND GUIDELINES:

A. This portion of the outline deals with guidelines for users of silver recovery units, photographic/X-ray film, and PM bearing items. Each type of use has different requirements. For example: If your shop silver-plates metal items and all you use is a silver recovery unit, then your responsibilities should be rather simple. However, a photo lab usually handles both film and a silver recovery unit; therefore, this monitor will have additional responsibilities.

B. Responsibilities for users with silver recovery units:

1. Develop and implement operational instructions for:

   a. Using and maintaining your recovery unit (Electrolytic Cartridge or Peterson Silver Cell).

   b. Turn ins or shipments of harvested silver, silver sludge, cartridge, or silver cell.

2. Keep a log of:

   a. Receipts or shipments of recovery equipment (keep a copy of the form received with it).

   b. Turn ins or shipments of flake sludge or solution.

c. Turn ins that may also include hazardous waste.

3. Keep copies of letters of appointment of unit monitor, alternate harvesters, witnesses/certifiers.

4. Keep copies of surveillance reports and your replies (most recent and the previous one).

X. IS YOUR EQUIPMENT UP TO DATE AND SERVICEABLE?

A. **Silver Flake Recovered from an Electrolytic Unit:** Certain silver compounds have the ability to change when exposed to light. This makes modern photography possible. In some cases 60% to 80% of the silver contained on the film is left in the hypo solution after the development process. Silver recovery from hypo solution can be accomplished by metallic replacement, precipitation or electrolytically, either on site or at a central recovery facility.

B. **Electrolytic Unit:** Nearly pure metallic silver is deposited on the cathode of an electrolytic unit. This is accomplished by passing a controlled, direct electrical current between two electrodes (a cathode and an anode), which are suspended in the fixer solution. Silver plates out on the negatively charged electrode (the cathode). The cathode must be removed periodically to strip off or harvest the plated silver, which is called silver flake.

C. **Recovery Cartridge:** Simply stated, a recovery cartridge accomplishes metallic replacement. A more active metallic element in the filter (usually iron or copper) reacts with the silver thiosulphate complex. (This complex is formed in the fixing reaction of a photographic process.) The silver -- a less active metal -- is separated from the complex and the more active metal takes its place. The silver settles to the bottom of the recovery cartridge. Metallic replacement within the recovery cartridge is nothing more than chemical precipitation controlled to take place over a greater length of time. The metallic replacement element dissolves slowly in the fixer and precipitates (replaces) silver.

Figure 4.3. Sample PMRP Training Outline.